

Beyond democratic legitimacy of value-judgments in science: a closer look at science in the early Soviet Union

Abstract. To distinguish between legitimate and illegitimate influence of values in scientific research, authors have argued in favour of various democratic mechanisms to ensure political legitimacy of social values in science. However, the prevalence of scientific research in nondemocratic contexts raises questions about political legitimacy of value-judgments. To show that notions of political legitimacy ought to be conceived more broadly than democratic proposals suggest, this article brings them in conversation with a historical case-study on the promotion of applied research in late Imperial Russia and the early years of the Bolshevik rule in the Soviet Union. Aside from demonstrating that notions of national interests motivated the promotion of value-laden research goals, I will argue that historical cases are not always useful for testing contemporary philosophical apparatus, but for revealing their underlying assumptions that would be more difficult to notice without the help of juxtapositions with historical cases.

1. Introduction.

A pivotal question regarding the influence of values on science concerns the legitimacy of social, ethical, and political value-judgments in research. Instead of dispensing with values altogether, recent efforts have been predominantly directed towards identifying ways to distinguish between legitimate and illegitimate influences of values in science (Holman & Wilholt 2022). The focus on legitimacy, however, raises questions about how to best understand the concept. Although evaluations of value-judgments in science can be done both on the basis of ethical considerations or tools of political philosophy (Schroeder 2020), currently there is a considerable interest in understanding legitimacy in political terms, especially with the help of conceptual apparatus drawn from democratic theory (Intemann 2015; Schroeder 2017; 2021; Lusk 2020; 2021).¹ For example, Schroeder (2021) includes a democratic element in his account of legitimising the presence of values in science

¹ A more programmatic argument regarding focussing on democracies comes from Heather Douglas (2018), who called for “an understanding of science in pluralist democratic societies.”

for protecting the public's trust in science. Intemann (2015) draws from democratic theory for the sake of securing stakeholder representation, and Lusk (2021) addresses the concern of undue influence of scientists' own values on policy-relevant science.

Appeals to democracy arrive with their own costs, though. From various concerns that could be levelled at the democratic proposals, my focus here is on how they potentially leave research conducted in non-democratic contexts unaddressed. This is no small omission. Bypassing the vast amount of research conducted in locales such as China or Russia, the current focus not only poses serious limitations to the breath of scope of the democratic proposals, but also risks rendering our accounts overtly Western-centric as nations classified as fully democratic tend to be situated in North America and Western Europe.

Despite there being good reasons to broaden the scope to cover non-democratic contexts, it is no news that research in such settings faces numerous challenges. Hopman (2022, 548-549) notes research in/of authoritarian contexts encounters "difficulties with obtaining reliable data because of limited access to data, information control and censorship, as well as security risks for both participants and researchers," where such challenges have led to some authoritarian zones to drop off the "research map" (Goodhand 2007, 7). Considering such challenges, it is interesting that some authors emphasise the potential of archival and historical research to better understand authoritarian contexts. Barros (2016), for example, notes that as researchers interested in authoritarian regimes operate without the data that institutions in democratic states produce as "byproducts of their operation," researchers rely much more on indirect evidence, especially on archival sources. This, for Barros, leads studies on autocracies depend on historical research to a larger degree than studies of democracies.

Building on Barros' insight, my aim here is to show by way of an example that achieving a deeper understanding of political legitimacy of values in science benefits from a much closer engagement in historical research on science in nondemocratic contexts. To do this, I will introduce a case-study on the promotion of more applied research in the late stages of Imperial Russia and the first decade of the Bolshevik rule in the Soviet Union. This case will make it pertinent to ask how value-judgments in research could retain – or gain – political legitimacy in non-democratic settings. Before embarking on a case-study, however, some historiographic concerns relating

to the representation of scientific practice and power-relations between scientists and politicians in the Soviet Union ought to be addressed first. After introducing the historiographic debate surrounding the “totalitarian” versus “revisionist” models of examining the Soviet Union (section 2), I will argue it serves us to keep in mind the complexity of power-relations in the Soviet Union. I then proceed to synthesise existing historical research on the relationship between scientists and politicians, and negotiations concerning pure science and applied research in the early years of the Bolshevik rule (section 3). As noted above, a closer examination of value-laden decisions in the Soviet context will help to scrutinise our conceptions of political legitimacy of scientists’ value-judgments. Engaging with these questions will show that we ought to take other forms of legitimacy more seriously than we have done before (section 5).

2. Beyond totalitarian model of historiography

When philosophers of science examine science under non-democratic contexts, it might be tempting to construe the relationship of scientists and politicians as a one where the state apparatus exerts control over science and scientists. There is some evidence that this way of parsing the relationship between Soviet politicians and scientists has gained a foothold in philosophical literature on values in science. For example, the Lysenko affair is often depicted an instance of problematic ideological influence on science where the corollary of the state support for Trofim Lysenko’s ideologically appropriate agronomy was the repression of the field of genetics, dramatically exemplified by the fate of Nikolai Vavilov (e.g., Lewens 2016, 170-174, Elliott 2017, Ch.1; John 2019, 65; see also Graham 2016, 72-75).

The Lysenko affair is of course much more complex than the above vignette suggests, but even in its complexity, it does not offer an exhaustive picture of the relationship between politicians and scientists in the Soviet Union. Although it is undeniable that the situation of genetics shows that the state did at times support certain lines of research deemed appropriate, and correspondingly repressed other lines of research, letting that episode take the centre stage bypasses the fact that generally, scientists and engineers (the “technical intelligentsia” or specialists) as a group achieved an elite status and enjoyed a relatively powerful position in Soviet society.

There is a broader historiographic point lurking behind the above points. Oversimplified reconstructions of the relationship between politicians and scientists encounter similar issues as the so-called “totalitarian” model of understanding the Soviet Union – a historiographic model that has been broadly discussed and criticised by historians. Traditionally favoured by political scientists who long dominated the field of Soviet studies, the totalitarian model has been described as including the elements of “near total control of society by the state, a lack of institutions or power centers outside that state, and a corresponding atomization of the population” (Arch Getty 2008, 713), its central theme being the conflict between state and society. According to Sheila Fitzpatrick, a historian strongly associated with the opposing revisionist school, this totalitarian model of scholarship

(...) portrayed the Soviet Union as a completely top-down entity. The destruction of autonomous associations and the atomization of bonds between people produced a powerless, passive society that was purely an object of regime control and manipulation. The main mechanism of control was terror, with propaganda used as a mobilizing device in second place. The regime (for which “the party” and “Stalin” were often used as synonyms) was a monolith whose actions were guided by the ideology articulated in the classics of Marxism-Leninism and obligatorily quoted in all Soviet pronouncements. After the end of the 1920s, when the Stalin period began, there was no political opposition, no independent press, no representation of interest groups, no tolerance of deviation from “the party line,” and no pluralism of any kind, including cultural. This was in effect a mirror image of the Soviet self-representation, but with the moral signs reversed (instead of the party being always right, it was always wrong). (Fitzpatrick 2007, 80; see also Fitzpatrick 1986a, 358-35)

As in the 1970s more historians entered the field dominated by political scientists, the initial Cold War premises of the debate were revised. In her 1986 description of the interests of the “new cohort” of revisionist historians, Fitzpatrick noted that they criticised the totalitarian model for “inherent political bias as well as for inappropriateness to contemporary Soviet reality” (Fitzpatrick 1986a, 357; see also “Really-Existing Revisionism?” 2001). Shifting more towards social history, historians

were “unlikely to be satisfied with hypotheses involving an undifferentiated ‘society,’ as in the state-against-society dichotomy” and found it “difficult to accept the idea of a society without significant internal tensions and conflicts (...), or of a society so inert that all the dynamics are external (as in the totalitarian model)” (1986a, 361). In particular, the revisionist approach explicitly challenged “the totalitarian-model assumption that society is irrelevant to an understanding of Stalinist political processes”(1986a, 370).

In a more recent characterisation of revisionist approach, Fitzpatrick highlighted that in envisaging the power-relations in more of a bottom-up way, revisionists

(...) depicted the Soviet Union in bottom-up rather than top-down terms. They assumed that society had to be more than a simple object of regime control, whatever the constraints on association and group expression, and they questioned whether the political system was really completely monolithic. They were not interested in ideology, and they tended to regard official ideological pronouncements simply as a mask for what was really going on. Assuming that terror alone could not enforce conformity and ensure the regime’s survival (especially in the Second World War), they suggested that somebody must be getting something out of this system, that is, that there was some kind of social support for the regime. (Fitzpatrick 2007, 81).

As the historiographic models favoured by each group became intertwined with broader political concerns, the alternative depiction of power-relations put forward by the revisionist scholars was heavily criticised. As anticipated by Fitzpatrick herself, the most problematic factor of the revisionist approach was that appeared “to reduce the role of terror and coercion, if only by suggesting that other factors are relevant as well” (1986a, 370). Although there was no reason to think that the revisionist pictures were incompatible with the conception of “Stalinist ‘revolution from above,’” – they just added the novel concept of “supporting or responsive social constituencies” (1987a, 371) – shifting focus to other political actors was interpreted as unjustifiably taking the blame away from Stalin (see e.g., Meyer 1986). Despite the fact that in her anticipation to such critique, Fitzpatrick emphasised that terror should be firmly on the agenda and diverting blame away from the regime was a problematic representation of terror, it serves as a testament of the bitterness and hyper-

politicisation of the controversy that the revisionist model was characterised as “the moral equivalent of Holocaust denial” by the opponents of the school (Fitzpatrick 2007, 79; see also Fitzpatrick 2008).

Moving to the formative 1990s, an editorial article for *Kritika* (‘Really-Existing Revisionism?’ 2001, 709) noted a retreat from the use of the two labels “totalitarian” and “revisionist,” which reflected at least in part the search for alternative frameworks. When it comes to the alternative perspectives on power-relations, in 1990s, the “post-revisionists,” in endorsing a Foucauldian perspective, challenged both the “from below” and “from above” approaches as equally problematic and preferred construing power relations as deciphered and thus necessarily multiple (Fitzpatrick 2007, 87). Where revisionists were characterised as averse to questions of ideology, post-revisionists returned to the theme, although their understanding of the term was “not in the sense of a canonical body of texts ... but more as *Weltanschauung* – something collectively construed rather than imposed” (Fitzpatrick 2007, 87; see also Kotkin 1998).

The above historiographic tendencies are reflected in histories of Soviet science. Compatibility between the “below” and “above” relations is exemplified in Kendall Bailes’ 1978 account of Soviet technical intelligentsia, where Bailes argued that adopting “group conflict models” alone does not capture the complex relationships between scientists, engineers, and politicians. Alongside the group-conflict model, Bailes advocated using a model that focuses on the “interaction of social forces” including forces of “social cohesion” (Bailes 1978, 8). More recently, Gerovitch (2002) summarised that some historians of science have been under the influence of the “Cold War-inspired “totalitarian model” of Soviet history” which “portrayed Soviet science as a victim of pervasive control by the Party/state apparatus,” an image that is difficult to reconcile with the scientific achievements of the Stalinist era (see also Kojevnikov 2004). In contrast, “[o]ther historians emphasize various forms of ideological accommodation, pragmatic cooperation, and even institutional integration between different groups of scientists and politicians” (Gerovitch 2002, 5). For Gerovitch, the source material supports a more nuanced picture than offered by those adhering to the totalitarian model. In the vein of post-revisionist view of power-relations, Gerovitch argues that “[t]he closer we look, then, the more complex the picture of the relationship between Soviet scientists and Soviet politicians becomes. Instead of a simple binary opposition, we have a confusing

Möbius strip: it is no longer entirely clear who is on which side” (2002, 4-6; see also Gerovitch 1996).

What consequences does all this have for philosophical accounts concerning values in science? The importance of remaining alert of the patterns that shape our conception of power-relations between scientists, engineers, politicians, and stakeholders of research is something that the above historiographic reflection I hope makes clear. Minimally, assuming that the relationship between scientists and politicians is a simple top-down relation in nondemocratic contexts carries a risk of oversimplification. This above point is especially relevant for the democratic proposals discussed in the introduction since they are often motivated by the concern that scientists have undue power when their values influence research that is subsequently used to inform policy; the relationship between scientists and policymakers might not facilitate a simple transfer of one’s values to another realm.

More importantly for the purposes of this article, the conception of the relationship between scientists and politicians has consequences for the legitimacy of value-judgments in research. Examining more closely the “Möbius strip” raises the question of whether anything can be said about the political legitimacy of value-judgments in research in nondemocratic contexts. In section 4, I will argue that indeed legitimacy of value-judgments can be conceived without appeals to democracy. To show this, however, a firmer idea is needed of how politicians and scientists in the Soviet Union negotiated an important value-judgement regarding research: namely, improving conditions for applied research over pure science.

3. Applied and pure science in late Imperial Russia and early Soviet Union

3.1. WWI and the turn towards applied. There are many ways in which values might influence scientific research, where the selection of aims of research is one familiar avenue of influence (Elliott 2013; Elliott & McKaughan, 2014). The question of prioritising practically oriented applied research over pure science has featured in those discussions to some extent. Even though there are good reasons to be critical of the distinction (Douglas 2014; Schauz 2014), there is no denying that the categories have played a role in scientific practice in different historical contexts and can provide a useful category to analyse historical episodes (Kline 1995; Arend 2019). Examining the negotiations surrounding pure science and applied research provide a good glimpse on the question of values in science in the late Russian

Empire and Soviet Union, especially since such negotiations have featured in histories of Soviet science (Kojevnikov 2002; 2004; Hall 2008; Josephson and Sorokin 2017).

Before the First World War, Russian scientists tended to favour pure research over the applied kind. The preference for pure was in part fuelled by limited career options outside higher education (although there were a few exceptions e.g., in metallurgy, sugar refining, and distillery). As research concentrated in higher education institutions, scientists' priority was to compete with European colleagues on pure research rather than gear their interests towards the needs of still-nascent industry (Kojevnikov 2004, Ch.1). The situation remained in favour of pure research even in fields like chemistry which lent themselves for practical application.

Chemists' laboratory training in universities was strained by the increasing number of students, which likely nudged chemists towards more pure research and hindered the development of physical chemistry (Brooks 1997).

Although a number of scientists had been vocal about the importance of applied research prior to 1914, it was the First World War that prompted a change in attitudes (Kojevnikov 2002). The war revealed Russia's dependence on nations like Germany even for the most common chemical substances such as tungsten for shrapnel and metallic bismuth for pharmaceuticals, the war changed these attitudes towards applied science (Bailes 1990, 138; Kojevnikov 2002; 2004, Ch.1; Brooks 1997). In 1921, academicians Vladimir Ipatieff (a chemist) and L. Fokin (an engineer), described the lack of state organisation of industry and dismal interest in developing it as follows:

[I]n the last ten years before the war there was no unifying plan for state building, and the development of this or that production proceeded independently of the general state tasks, partly by accident (...) a very typical example from the metallurgical industry can be cited. Due to the great construction of cities, new railways, the great need for metals for buildings in cities and even the countryside, two, three years before the war, a large shortage of pig iron for processing steel and iron was discovered. Instead of using all their strength to build new blast furnaces in Russia, to exploit the incalculable wealth of ore and coal in the Kuznetsk region in Siberia, the

leaders of our industry very easily solved the problem of a shortage of metal by allowing duty-free importation of pig iron from abroad. (Ipatieff & Fokin 1921, 4).

Recounting developments regarding chemistry in particular, Brooks (1997) notes a number of measures to address Russia's dependence on other nations. To counter the shortages regarding pharmaceutical materials, the Ministry of Education proposed establishing a distinct section at universities that geared chemistry towards pharmacology (Brooks 1997, 361). The Chemistry section of the Physico-Chemical society established a War-Chemical Committee to coordinate work in order to unite "the strength of Russian chemists 'for joint and planned work on problems connected with the needs of national defense'" (quoted in Brooks 1997, 357). Although the committee coordinated several tasks related to research and production of materials, the lack of resources hindered chemists' helpfulness. In a 1915 meeting of Moscow chemists, it was remarked that efforts of nearly every chemist in Moscow's higher education institutions were geared towards the war effort, but their work was held up by the lack of materials (Brooks 1997, 355-7).

The situation prompted suggestions for improvement of the material conditions of science. Academician Vladimir Vernadsky, a geochemist and mineralogist in Moscow University, appealed to the war experience to make the case for the usefulness of science to Russia. In his 1915 publications on science and war, Vernadsky noted the unprecedented utilisation of science for warfare. To remedy Russia's dependence on other nations, Vernadsky argued that the main objective in Russia was to map the natural resources of its vast lands. To reach this aim, science needed more support from the government, where research was best organised through networks of institutes, laboratories, and museums (Bailes 1990, 138-139).

Translating words to action, Vernadsky initiated the Commission for the Study of the Natural Productive Forces of Russia (KEPS) in the Academy of Sciences. In a January 1915 memorandum, Vernadsky proposed that KEPS ought to gather new information about the resources of Russia and to synthesise existing knowledge to help with the war effort (Bailes 1990, 139). According to Kojevnikov, Vernadsky's main objective for KEPS was not only to study the national resources but also to encourage collaboration and mobilisation of physicists, chemists, social scientists, geologists, mineralogists, zoologists, and botanists, in a manner that the wartime had seen the mobilisation of engineers. The fact that the wartime challenges

rendered reaching the goals quickly unrealistic did not deter Vernadsky from insisting on making a start. Among KEPS's early initiatives was commissioning scientists to write reviews that provided detailed summaries of Russia's chemical factories, ores, minerals, energy, plants, and animals, where Vernadsky highlighted the minerals that were most urgently needed (Kojevnikov 2004, 19-20).

In the first meeting of KEPS in Perm in October 1915, A.E. Fersman, former student of Vernadsky, was elected as the chairman (Filippova 1985, 76, fn. 2). Fersman subsequently assessed that the effects of KEPS's wartime activities as insignificant (Bailes 1990, 140). Although there is some disagreement among historians on the broader significance of KEPS (see Josephson and Sorokin 2017), its formation demonstrates that the idea of taking science more towards applied direction – ideas that Bolsheviks subsequently came to promote – were already highlighted by academicians who generally had very different political views to Bolsheviks. This did not only apply to the idea of KEPS or governmental support for more applied research, but also to the idea of organising such research through a network of research institutes – a feature that is perhaps most strongly associated with the subsequent Soviet science system.

3.2. The Bolshevik support for science. Although the early Bolshevik science policy has been described as scattered (Josephson 1988), there is no denying that Bolsheviks attached immense importance to science and technology. In a pamphlet written during September 1917, Lenin noted that

A proletarian government will say: we need more and more engineers, agronomists, technicians, scientifically educated specialists of every type. We will give all such workers responsible work to which they are accustomed. We will probably only gradually introduce equal pay for them, giving higher pay to such specialists during the transitional period, but we will surround them with workers' control and we will enforce the rule: "He who does not work, neither shall he eat." (quoted in Bailes 1978, 48).

To attract specialists, Bolsheviks contacted the Academy of Sciences shortly after the October revolution in questions relating to organisation of scientific work. In late January 1918, an extraordinary general meeting of the Academy of Sciences

working on matters relating to the Soviet government considered Bolsheviks' proposal of determining how to best attract the Academy of Sciences to building socialism. The Academy's permanent secretary S. F. Oldenburg informed his fellow academicians that he had been visited by a representative of the Commissariat of Public Enlightenment to discuss the readiness of the Academy to conduct scientific work connected with various state tasks. One such task was the matter of studying natural resources of the republic (Bastrakova et al. 1968, 103, see esp. documents 54-57). Oldenburg's colleagues authorised him to respond that the Academy would issue its decision depending on the specific individual questions posed by the politicians, the scientific nature of the question, and the availability of Academy's resources.

Two days later, Oldenburg received a letter from the Commissariat of Enlightenment. The letter contained a number of theses for Academy's consideration. From the seven theses, the ones especially worth highlighting include

1. Establishing an organisational centre for mobilising science within the auspices of the Academy of Sciences
2. Liaising with organisations conducting practical work on national economy
3. Mobilising science to address a range of needs that arise from state building, including the study of the natural productive forces of the country, national economic labour, questions of population policy (health care, the culture of human productive forces, public education, social insurance, the organisation of state administration).

One of the reasons for Bolsheviks scoping the support for scientists was the recognition that scientific and technological resources were crucial for the war effort. As Bailes notes, around the time the Bolsheviks approached the Academy of Sciences – which coincided with the time of signing of the Brest-Litovsk Treaty that concluded the Russian participation in the war – Lenin remarked on the importance on science and technology on war as follows:

The war taught us much, not only that people suffered, but especially the fact that those who have the best technology, organization, discipline and the best

machines emerge on top; it is this the war has taught us, and it is a good thing it has taught us. It is essential to learn that without machines, without discipline, it is impossible to live in modern society. It is necessary to master the highest technology or be crushed. (Quoted in Bailes 1978, 49).

Aside from the significance of science and technology for the war effort, Bastrakova (in Bastrakova et al., 1968) emphasises the importance of alliance with scientists for reaching the economic goals. Notable is for example A.V. Lunacharsky's presentation at a meeting of All-Russian Central Executive Committee on April 1918, where he provided a report on scientists' engagement in solving economic challenges faced by the nation (Bastrakova et al. 1968, 5) As a result of discussions on this topic, the Council of People's Commissars decided to finance the work of the Academy of Sciences that had adopted as a goal the study and usage of the nation's natural resources. As Bastrakova notes, the budget of 1918 almost quadrupled the funds given by the Tsarist government in 1917. This funding came with strings attached, though, as the socialist state demanded specific directions for research, which is especially well demonstrated by Lenin's texts. For example, in his outline of the "Immediate tasks of Soviet Power," Lenin called to study Caucasian Oil, the Ural ores, and chemical substances of Kara-Bogaz" (Bastrakova et al. 1968, 5; see also Gorbunov 1975).

In line with the above considerations, the new Communist Party program of 1919 included a statement about bringing together industrial production and research by means of a "network of new scientific applied institutes, laboratories, experimental stations, and testing facilities" (Bastrakova et al. 1968, 91.) Accordingly, the number of research institutes increased rapidly in the early Soviet period. In most cases, the departments of KEPS developed into institutes (Graham 1975, 313), but after Lenin and his secretary Gorbunov's plans to concentrate research under one organisation were halted by the Commissariat of Enlightenment, research institutions were also formed under the newly established Scientific-Technical Department of the Supreme Economic Council (VSNKh) and Glavnauka operated by the Commissariat of Enlightenment (Josephson 1988). From 1923-1930, the number of scientific research institutes in the Scientific-Technical Department of VSNKh increased from 13 to 50 where the budget (in rubles) increased from 2,100, 000 - 108,000,000

(Josephson 1988, 348). With scientific institutes under Glavnauka, the total number of research institutes changed from 21 to 90 in 1918-1926 (Josephson 1988, 367).

As to bringing science closer to industry, for example Brooks (1997, 357) argues that Russian chemists intended on continuing involvement in the chemical industry after the war (see also Ipatieff 1945). A good example of this comes from the establishment of the Central Chemical Laboratory of the Chemical section of VSNKh, initiated in October 1918. Recounting its origins story, A.N. Bakh notes how the institute's director L. Ya. Karpov considered it an urgent need of the chemical industry that a large research-technical laboratory for research was established (Bakh 1968, 22). Although Bakh recounts that the initial selection of the location of the laboratory reflected its mission to serve the needs of chemical industry, there was generally a reluctance to house institutes on-site with individual plants (Graham 1975, 322-323).

Regarding the prioritisation of applied or pure research, at first, striking the balance was not so much a question of solely prioritising applied research, but aligning pure research better with technology. Good examples are the State Optical Institute, which specified both scientific and technological tasks for the institute (Kojevnikov 2004, 38) and Leningrad Physico-Technical Institute, which was geared towards applied and fundamental physics (Josephson 1988, 351; Graham 1993, 209). Although many of the branches of KEPS developed into research institutions that were geared towards applied research (Josephson 1988, 344, fn.8), at least some of the new institutions carved out resources from their budgets towards fundamental research. The State Siberian Physical Technical Institute (SFTI), founded in the late 1920s to conduct research on more applied matters (radio and optical electronics, solid-state physics, radiophysics and medical materials), it did also start new programmes on quantum and nuclear physics (Josephson and Sorokin 2019, 298-299).

Further examples about balancing pure and applied research comes clear in the comments of Ipatieff and Fersman. Although Ipatieff made considerable efforts to improve the state of Soviet chemical industry and research-landscape, it should be noted that this did not automatically translate to a default prioritisation of applied research over pure science. Building on Bastrakova's (1973) findings, Bailes (1978, 57) notes that Ipatieff, who was put in charge of the Scientific-Technical Section (NTO) in 1921 – an organisation previously headed by Gorbunov, a young chemical

engineer and Lenin's secretary – found NTO a questionable state. Ipatieff argued that an organisation such as NTO ought to focus more on pure research rather than “routine problems”, and apparently the Soviet government agreed with his assessment (Bailes 1978, 57).

The balancing between pure and applied research remains similarly nuanced with views of Fersman, the academic secretary of KEPS. After Shapiro's proposal was discussed by the Academy, Fersman wrote a long memorandum where he “objected to giving the Soviet government advice on particular, specialised segments of the economy” (Bailes 1990, 150). Concerned about preserving old traditions over taking up new tasks, Fersman felt that the Academy should focus more on broader scientific matters. Soon after, he had changed his mind; in the March 24 1918 memorandum Fersman presented ways in which to support the building of the Soviet economy (Bailes 1990, 150).

3.3 Scientists' views. Why did scientists and technical specialists collaborate with Bolsheviks whose political views they tended not to share? A sense of duty towards one's country and the urge to better the conditions of Russian industry and science have featured in scientists' published reflections. Considerations of duty come clear especially from the comments of Ipatieff, who was an emeritus professor of chemistry in the Artillery Academy and a sympathiser of the liberal Kadet party. During WWI, Ipatieff held key positions in developing various chemical endeavours and subsequently worked with the Bolsheviks to improve the state of Russian chemistry until leaving the Soviet Union in 1930. In his autobiography, Ipatieff describes his (unusually) inactive winter of 1919 in the following way:

Often as I lay on my bed in the evening I thought: “Why am I lying here, when I could be of use to my country in scientific research and in the chemical industry? Why not go to Lenin, tell him what I can do, and offer him my services to help rebuild our broken nation?” Surely the Bolsheviks knew of my work during the war. Yet I hesitated to take this step, lest they doubt my sincerity in wishing to co-operate with them further. (Ipatieff 1946, 281)

Similar references towards duty arose in Ipatieff's narrative of the early years of the Soviet rule, including his account of persuading reluctant colleagues to take up work

delegated by Bolsheviks (Ipatieff 1945, 295) and refusing to join conspiratorial actions against the Bolshevik government (Ipatieff 1945, 300).

A few years after the above reflection, after Ipatieff had become more involved with the Bolsheviks in converting the chemical industry to a more peacetime mode, his name was put forward for the chairmanship of the Chemical Administration of VSNKh, a position that Ipatieff held in 1921-1926 (see Schmerling 1975, 92; Ipatieff 1946, 308-310). Ipatieff subsequently explained his acceptance for this government position as follows:

In accepting this work I believed as a patriot that I could be of use to my country in a field where my knowledge and experience were needed, despite my political convictions. In the Tsarist regime it had been no different: many government people who did not sympathise with the autocracy still did good work for it. A statesman must be a man who can be trusted, one who is honest, unselfish, and not afraid to tell the truth or to point out erroneous policies dangerous to his country's welfare. (Ipatieff 1946, 310-311)

Aside from duty towards rebuilding Russia, another feature that comes clear in scientists' reflections concerns preservation of science and research in conditions that could be detrimental to it. M.P. Dukel'sky, a Ukrainian professor of chemical technology in Kyiv's Polytechnic Institute, penned a critical letter in late March 1919 to Lenin on the Bolsheviks' approach towards specialists in his town Voronezh:

No doubt you are so cloistered in your Kremlin isolation that you don't see the life surrounding you. You haven't noted how many among the Russian specialists are not, it is true, government Communists, but real toilers, who obtained their special knowledge at the price of extremely hard work, not from the hands of capitalists and not for the goals of capitalism, but by prolonged struggle with the deadly conditions of student and academic life under the previous regime (Dukel'sky, 1919; translation by Bailes 1978, 54-55).

Despite specialists living under conditions where the "newly minted unconscientious Communists" humiliated and manhandled them, Dukel'sky noted in his letter published in *Pravda* that the specialists had "not left their posts and have devotedly fulfilled their moral obligation to preserve, at the price of whatever sacrifices, their

culture and knowledge for those who have insulted and humiliated them at the instigation of their leaders” (Dukel’sky, 1919, translation by Bailes 1978, 54-55).

Zhukov (2001, 35) reports that upon receiving Lenin’s response to his letter (see Dukel’sky, 1919 and Bailes 1978, 55-56), Lenin’s answer had an effect like “a refreshing blast of ozonated air” on Dukel’sky. Aside from subsequently joining the Communist party and publishing favourable views of the communist efforts towards technical intelligentsia, Dulek’sky participated in chemical industrial projects of VSNKh, including travels to construction of chemical plants (Zhukov 2001, 35; Bailes 1978, 55).

4. Beyond democratic legitimacy of values

The main value-judgement that featured in the above historical case concerned the aims of research, as was illustrated by the Bolsheviks’ call for a better position for more applied research. As we saw, there was a degree of consensus between Bolsheviks and academicians such as Ipatieff and Vernadsky, where the agreement regarding the importance of applied research was chiefly manifested by the formation of new research institutions that housed more applied projects alongside research on fundamental questions. One of the sources of agreement can be traced to the WWI experience, which demonstrated the importance of science and technology for the war-effort, together with Russia’s dependence on other nations and the relatively weak state of its industry.

Considering the (philosophical) motivations laid out in the introduction of this article, it would be beneficial to take stock on the potential benefits of bringing the above historical case in conversation with the democratic proposals regarding legitimacy of value-judgments in science. A normatively inclined philosopher might be tempted to pursue the following line of thought. Recalling that proposals on values are not only meant to help practising scientists to ensure legitimacy of value-judgments but also act as a diagnostic tool to assess past value-judgments in science, they might be tempted to ask whether it was legitimate on behalf of scientists and Bolsheviks to push for applied research. Considering the current democratic proposals, they might be inclined to conclude that the value-judgement regarding aims appears illegitimate as there were next to no democratic mechanisms to scope the views of relevant stakeholders.

Although bringing a historical case in conversation with contemporary proposals appears to invite a normative assessment of the past in the above manner, I would instead nudge towards another option: namely that in this case, a much looser juxtaposition of the historical episode with the contemporary proposals illustrates something important about *legitimacy* of value-judgments.

My guess is that for most readers, the Bolsheviks and the Academicians' growing emphasis on applied research appears an appropriate reaction, especially considering that before WWI, Russian scientists favoured pure science. If this intuition is shared, it suggests that we can have legitimate value-judgements without them giving an instance of democratically legitimate value-judgement. What type of legitimacy would this be, then? There are at least two options. We could pursue the argument that the scientists and Bolsheviks were *ethically* justified in pushing applied research over pure research. The weakness of this response is that beyond Dukel'sky's reference to the "moral obligation" (*moral'noe obyazatel'stvo*) to preserve culture and knowledge, it is not entirely clear what, precisely, is the ethical element in the commentaries we saw above. Instead, the arguments made in favour of bettering the conditions for applied research appear more political by nature; they evoked something akin to our contemporary understanding of national interests (as was demonstrated by the comments of Ipatieff in particular) and concern for preserving existing institutions (which featured in the statements and actions of Fersman.) Minimally, such arguments suggest that protecting national interests and preserving existing institutions should be on the agenda when considering political legitimacy of value-laden research priorities.

If we agree that protecting national interests could potentially provide legitimacy for value-laden research priorities, what, then, can be said of the sources of such legitimacy? It seems that the training and experience of the specialists plays a role; after all, it gives their calls a certain gravitas that would be absent without such training and experience. Furthermore, the conditions of war and revolution make it clear that there are situations when there are very limited resources to democratically justify value-laden decisions on research priorities. To look for such instances, we do not necessarily have to look at non-democratic contexts. Urgency of the issues means that at times, scientists must resort to quick judgement-calls where conceptions of what is good for the broader public should play a role. Interestingly, the necessity of decision-making in conditions that do not neatly lend

themselves to democratic mechanisms gives additional support to proposals like Kitcher's (2011) model of "ideal conversation." Ironically enough, it is precisely the lack of direct engagement with stakeholders of research — the emphasis on the solitariness of the exercise — that lends Kitcher's model for such nonideal circumstances, despite the fact that it is the element that has been criticised as depriving Kitcher's model of legitimacy (Keren 2015; see also Douglas 2013). Although Kitcher's ideal draws heavily from democratic ideals and especially the protection of values of equality and freedom, there might be something to be said about it providing some other form of political legitimacy in nonideal circumstances.

Providing a fuller analysis of legitimacy which draws from notions of national interest and protection of existing institutions and practices is beyond the scope of this essay, but it should be noted that the concept of national interest has been discussed among political sciences, thus offering potential resources for deeper thinking of its role in scientific practice. One important objection that ought to be considered here, though, concerns the normative force and desirability of accounts of political legitimacy made on the basis of insights derived from considering nondemocratic contexts. After all, philosophers are often interested in the legitimacy of value-judgments precisely in order to guide further research, so the normative force of accounts made on the basis of cases set in nondemocratic contexts might not seem all that promising.

There are several responses that could be invoked. First thing to note is that accounts that draw from nondemocratic settings could work for non-democratic contexts, so it is not so much about the lack of normative forcefulness of the proposals as it is about the appropriate context of their application. Second, we might want to put some pressure in the urgency of developing normative, prescriptive accounts before we reach a fuller understanding of the role of values in science in different political contexts. (Minimally, a closer examination of science in non-democratic settings offers a useful contrast case which would teach us something about the role of values in different settings.) Furthermore, it is not all that clear that normative accounts that draw from democratic theory are the best source of normative persuasiveness, as overt focus on a specific nationally construed *demos* can be problematic when tackling more global challenges that require conceiving the relevant stakeholders more broadly than democratic models would imply.

Finally, one might argue that instead of framing the discussion in terms of legitimate or illegitimate value-judgments, it would be better to opt for language of justified value-judgments as the grounds for justified value-judgments seem broader than conditions for political legitimacy. Although I am sympathetic to this suggestion especially since it dovetails analogous recommendations (see e.g., Ward 2021), I suspect that looking for political justification would encounter similar limitations as looking for political legitimacy of values, especially since many of the democratic proposals are motivated with the hope to amend the concern that scientists exercise too much power with respect to central value-judgments in research. Irrespective of which label is chosen, it does not take away from the fact that much of the discussion draws from democratic ideals when they could be drawing from a much broader conception of political legitimacy.

5. Conclusion. Although this article has only scratched the surface of the broad topic of values in science in nondemocratic contexts, hopefully the small area uncovered does speak of the potential of revealing more of the underlying picture. It would be now appropriate to conclude with some methodological reflections. By juxtaposing the historical case of applied/pure negotiations in the late stages of Imperial Russia and the early years of the Soviet Union with contemporary discussions regarding legitimate political value-judgments in science, I discouraged against using the contemporary proposals to retrospectively assess the legitimacy of value-judgments featured in the historical episode in question. Although this might be appropriate course of action in some situations, here, it serves well to remember that the democratic tools in question were developed in widely different sociopolitical circumstances and are motivated by concerns regarding the issues of previous normative accounts of values and undue political influence of scientists.

Instead of using such tools to assess past science, I suggested it is better to opt for a much looser juxtaposition of the historical case with the philosophical apparatus; doing so would highlight assumptions built in our philosophical accounts which remain more difficult to notice when they are examined and assessed in isolation. As we saw, such a juxtaposition especially underscored that notions of political legitimacy of setting value-laden aims of research ought to broaden from democratic concerns to notions such as national interest and protection of existing institutions and practices. By opting for such a looser juxtaposition, the underlying

secondary aim in this article has been to put to practise an approach to HPS which Laurent Loison (2016) has called “critical presentism,” which has served as the major methodological inspiration for this article.

Another methodological aspect that ought to be highlighted here concerns the value of engaging with historiographical aspects when conducting HPS. In particular, I argued that we ought to be cognisant of our potentially simplistic expectations of the power-relations between scientists (and other elite groups) and politicians in nondemocratic settings. Underlying this point – and indeed the whole section 2 of this article – is that in engaging such methodological reflections, researchers operating in democratic settings (like myself) seek to gain better insight on nondemocratic contexts in order to contribute to largely scholarly debates in democratic settings.

Like a stone in a shoe, there is something in this picture that ought to be a source of discomfort; namely, that the above line of thinking places a nondemocratic-to-democratic asymmetry in my narrative that would be unlikely to please myself if I happened to be a scholar situated in those nondemocratic settings. Although working together in ways that benefit all parties would be something of a remedy for such asymmetries, a more minimal solution is to emphasise the value of so-called “factological” approaches to Soviet histories of science. Under conditions of censorship, many Soviet historians opted to focus on gathering new facts and sources instead of providing explicit interpretations, preferring to delegate interpretation to the reader (Gerovitch 1996, 115-119; 1998, 205; Aronova 2011, 194). Although assessing interpretations is the bread and butter of historians’ work, interpretation can be at times dangerous. Aside from appreciating that fact, I hope it is evident that primary-source oriented modes of scholarship are of value especially when archives are closed, destroyed, or access to them is limited. In a world where careful and cognisant historical interpretations tend to age at a slower rate than philosophers’ normative accounts, primary sources remain forever young. Against this background, gathering primary sources is a practice to be fostered and appreciated; the results of that labour provide a more permanent gateway of access in a world filled with windows of opportunity, which sadly we do see closing.

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